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## LIST OF ABBREVIATIONS, ACRONYMS & DEFINITIONS

**45 SW** – 45th Space Wing

**45 SW/RANS/DS** – Range Scheduling

**45 SW/LG**- 45th Logistics Group

**45 SW/MDG**- 45th Medical Group

**45 SW/OPG**- 45th Operations Group

**45 and 30 SW/SE** - 45th Space Wing, Office of the Chief of Safety; see also Office of the Chief of Safety

**45 SW/SEG** - 45th Space Wing, Ground Safety

**45 SW/SEO** - 45th Space Wing, Mission Flight Control and Analysis

**45 SW/SEOE** - 45th Space Wing, Expendable Launch Vehicle Operations Support and Analysis

**45 SW/SEOO** - 45th Space Wing, Mission Flight Control

**45 SW/SEOS** - 45th Space Wing, Space Transportation System Operations Support and Analysis

**45 SW/SES** – 45th Space Wing, Systems Safety

**45 SW/SESP** – Classified Payloads

**45 SWSPTG**- 45th Support Group

**45 SW/XPR** – 45th Space Wing, Plans & Requirements

**AF** - Air Force

**AFETR** - Air Force Eastern Test Range

**AFOSH** – Air Force Occupational Safety and Health

**AFI** - Air Force Instruction

**AGC** - Automatic Gain Control

**ALD** – Assistant Launch Director

**ANT** - Antigua Air Station

**approval** - Range Safety approval is the final approval necessary for data packages such as the Preliminary Flight Data Package, the Final Flight Data Package, the Missile System Prelaunch Safety Package, the Range Safety System Report, the Ground Operations Plan, and the Facility Safety Data Package. In addition, Range Safety approval is required for hazardous and safety critical procedures prior to the procedure being performed; however, Range Safety approval does not constitute final approval for hazardous and safety critical procedures since Range Users normally have additional approval requirements prior to the procedure being performed.

**ARIA** - Advanced Range Instrumentation Aircraft

**ARG** - Argentia

**ARTCC** – Air Route Traffic Control Center

**ASC** - Ascension Auxiliary Air Field

**AST** - Associate Administrator for Commercial Space Transportation

**ATOTS** - Advanced Transportable Optical Tracking Systems

**CATEX** - Categorical Exclusion

**CCAS** - Cape Canaveral Air Station

**CCC** - Central Computer Complex

**CCD** - Charged Coupled Device

**CCFF** – Cape Canaveral Forecast Facility

**CCRS** - Central Command Remoting System

**C/D** – Countdown Net

**CDR** – Critical Design Review

**CDS** - Command destruct System

**CFR** – Code of Federal Regulations

**CIF** - Central Integration Facility

**CMEV** - Command Message Encoder Verifier

**COLA** – Collision Avoidance

**commercial user** - a non-federal government organization that provides launch operations services

**control authority** - a single commercial user on-site director and/or manager, a full time government tenant director and/or commander, or United States Air Force squadron/detachment commander responsible for the implementation of launch complex safety requirements

**CSC** – Command System Controller

**CSO** – Complex Safety Officer

**deviation** - a designation used when a design noncompliance is known to exist prior to hardware production or an operational noncompliance is known to exist prior to beginning operations at CCAS and Vandenberg Air Force Base

**DoD** - Department of Defense

**DoDD** - Department of Defense Directive

<sup>0</sup> - degree, degrees

**DOAMS** - Distant Object Attitude Measurement System

**EELV** - Evolved Expendable Launch Vehicle



**EIAP** - Environmental Impact Analysis Process

**EIS** - Environmental Impact Statement

**ELV** - Expendable Launch Vehicle

**EPC** - Environmental Protection Committee

**ER** - Eastern Range

**errant launch vehicle** - a launch vehicle that, during flight, violates established flight safety criteria and/or operates erratically in a manner inconsistent with its intended flight performance. Continued flight of an errant launch vehicle may grossly deviate from planned flight, with the possibility of increasing public risk to unacceptable limits.

**EWR** – Eastern and Western Regulation

**explosive quantity distance site plans** - a formal plan for explosives facilities and areas required in accordance with AFM 91-201 and DoD 6055.9-STD detailing explosives quantity operating and storage limits and restrictions and resultant distance clearance requirements

**explosives** - all ammunition, demolition material, solid rocket motors, liquid propellants, pyrotechnics, and ordnance as defined in AFM 91-201 and DoD 6055.9-STD.

**failure** - the inability of a system or system component to perform a required function within specified limits

**FCA – Flight caution Area**

**Flight Caution Area** - a Hazardous Launch Area; the controlled surface area and airspace outside the Flight Hazard Area (FHA) where individual risk from a launch vehicle malfunction during the early phase of flight exceeds  $1 \times 10^{-6}$ . When activated, only personnel essential to the launch operation (mission-essential) with adequate breathing protection are permitted in this area; see also Flight Hazard Area, mission-essential personnel

**FHA – Flight Hazard Area**

**Flight Hazard Area** - a Hazardous Launch Area; the controlled surface area and airspace about the launch pad and flight azimuth where individual risk from a malfunction during the early phase of flight exceeds  $1 \times 10^{-5}$ . Because the risk of serious injury or death from blast overpressure or debris is so significant, only mission-essential personnel in approved blast-hardened structures with adequate breathing protection are permitted in this area during launch.

**FONSI** - Finding of No Significant Impact

**FPA – Flight Plan Approval**

**flight termination action** - the transmission of thrust termination and/or destruct commands to a launched launch vehicle and/or payload

**FTS** - Flight Termination Systems

**FTS** - Flight Termination System; includes the Radio Controlled Command Destruct System, the Automatic Destruct System, and associated subsystems

**FTU** - Flight Termination Unit

**GHz** - Gigahertz

**GSE** – Ground Support Equipment

**GTO** - Geotransfer Orbit

**hangfire** - a condition that exists when the ignition signal is known to have been sent and reached an initiator but ignition of the propulsion system is not achieved

**hazard, hazardous** - equipment, systems, events, and situations with an existing or potential condition that may result in a mishap

**HF** - High Frequency

**hold** - a temporary delay in the countdown, test, or practice sequence for any reason

**holdfire** - an interruption of the ignition circuit of a launch vehicle

**HQ** - Headquarters

**HPWT** – High Performance Work Team

**IFLOT** - Intermediate Focal Length Optical Tracker

**IGOR** - Intercept Ground Optical Recorders

**IIP** – Instantaneous Impact Point

**ILL** - Impact Limit Line

**imminent danger** - any condition, operation, or situation that occurs on the Range where a danger exists that could reasonably be expected to cause death or serious physical harm, immediately or before the imminence of such danger can be eliminated through control procedures; these situations also include health hazards where it is reasonably expected that exposure to a toxic substance or other hazard will occur that will cause harm to such a degree as to shorten life or cause a substantial reduction in physical or mental efficiency even though the resulting harm may not manifest itself immediately

**impact area** - an area surrounding an approved impact point based on the launch vehicle and/or payload dispersion characteristics

**impact limit line** - a Hazardous Launch Area; the boundary within which trajectory constraints and FTSs are used to contain an errant launch vehicle and vehicle debris. Mission-essential and Wing-essential personnel are permitted within the ILLs; with Wing Commander approval, non-essential personnel may be permitted within this area. However, the collective risk will not exceed acceptable standards for non-essential personnel; see also mission-essential personnel, non-essential personnel

**independent** - not capable of being influenced by other systems

**individual risk** - the risk to a randomly exposed individual; the probability that the

individual will be a casualty

**INSRP** – Interagency Nuclear Safety Review Panel

**ITL** - Integrate-Transfer-Launch

**JDMTA** - Jonathan Dickinson Missile Tracking Annex

**JLRPG** - Joint Long Range Proving Grounds

**KSC** - Kennedy Space Center

**KTM** - Kineto Tracking Mounts

**LASP** – Launch Abort Subpanel

**launch area** - the facility, in this case, CCAS and KSC, where launch vehicles and payloads are launched; includes any supporting sites on the Eastern Range; also known as launch head

**launch area safety** - safety requirements involving risks limited to personnel and/or property on CCAS and may be extended to KSC or VAFB; involves multiple commercial users, government tenants, or United State Air Force squadron commanders

**launch complex** - a defined area that supports launch vehicle or payload operations or storage; includes launch pads and/or associated facilities

**launch complex safety** - safety requirements involving risk that is limited to personnel and/or property located within the well defined confines of a launch complex, facility, or group of facilities; for example, within the fence line; involves risk only to those personnel and/or property under the control of the control authority for the launch complex, facility, or group of facilities

**launch head** - see launch area

**launch vehicle** - a vehicle that carries and/or delivers a payload to a desired location; this is a generic term that applies to all vehicles that may be launched from the Eastern Range, including but not limited to airplanes; all types of space launch vehicles, manned space vehicles, missiles, and rockets and their stages; probes; aerostats and balloons; drones; remotely piloted vehicles; projectiles, torpedoes and air-dropped bodies

**LBS** - Launch base Support

**LCC** – Launch Commit Criteria

**LD** – Launch Director

**LDZ** – Launch Danger Zone

**lead time** - the time between the beginning of a process or project and the appearance of its results

**LRR** – Launch Readiness Review

**LWO** – Launch Weather Officer

**MARSS** - Meteorological and Range Safety System

**MIC** - meets intent certification; a noncompliance designation used to indicate that an equivalent level of safety is maintained despite not meeting the exact requirements stated in this Regulation

**MIGOR** - Mobile Intercept Ground Optical Recorders

**MILA** - Merritt Island Launch Area

**misfire** - a condition that exists when it is known that the ignition signal has been sent but did not reach an initiator and ignition of the propulsion system was not achieved

**mission-essential personnel** - those persons necessary to successfully and safely complete a hazardous or launch operation and whose absence would jeopardize the completion of the operation; includes persons required to perform emergency actions according to authorized directives, persons specifically authorized by the Wing Commander to perform scheduled activities, and person in training; the number of mission-essential personnel allowed within Safety Clearance Zones or Hazardous Launch Areas is determined by the Wing Commander and the Range User with Range Safety concurrence

**Mission Rules** - a document of agreements between the Range User and Range Director specifying, in detail, those requirements and procedures not covered by this document

**MFCO - Mission Flight Control Officer** - a United States Air Force Officer or civilian who monitors the performance of launch vehicles in flight and initiates flight termination action when required; the direct representative of the Range Commander during the prelaunch countdown and during launch vehicle powered flight

**MOTS** - Mobile Optical Tracking System

**MSPSP** – Missile System Prelaunch Safety Package

**MSU** - Message Storage Unit

**NASA** - National Aeronautics and Space Administration

**NASCOM** - NASA Communications Network

**NEPA** - National Environmental Policy Act

**nominal vehicle** - a properly performing launch vehicle whose instantaneous impact point (IIP) does not deviate from the intended IIP locus

**noncompliance** - a noticeable or marked departure from Regulation standards or procedures; includes deviations, meets intent certifications, and waivers

**non-essential personnel** - those persons not deemed mission-essential or Wing-essential; includes the general public, visitors, the media, and any persons who can be excluded from Safety Clearance Zones with no effect on the operation or parallel operations

**NORAD** – North America Defense Command

**NOTAMS** – Notices to Airmen

**NOTMARS** – Notices to Mariners

**OD** - Operations Directive

**Office of the Chief of Safety** - the Range office headed by the Chief of Safety; this office ensures that the Range Safety Program meets Range and Range User needs and does not impose undue or overly restrictive requirements on a program

**OPR** - Office of Primary Responsibility

**OR** - Operations Requirements

**orbital injection (insertion)** - the sequence of events in time and space, whereby a vehicle achieves a combination of velocity and position such that without additional thrust at least one orbit of the earth will be made

**OSM** – Operations Security Manager

**OST** – Operations safety Technician

**PAFB** - Patrick Air Force base

**payload** - the object(s) within a payload fairing carried or delivered by a launch vehicle to a desired location or orbit; a generic term that applies to all payloads that may be delivered to or from the Eastern Range; includes but is not limited to satellites, other spacecraft, experimental packages, bomb loads, warheads, reentry vehicles, dummy loads, cargo, and any motors attached to them in the payload fairing

**PCC** - Photo Control Console

**PCM** - Pulse Code Modulation

**PDR** – Preliminary Design Review

**PI** - Program Introduction

**PL** - public law

**positive control** - the continuous capability to ensure acceptable risk to the public is not exceeded throughout each phase of powered flight or until orbital insertion

**PRD** - Program Requirements Document

**program** - the coordinated group of tasks associated with the concept, design, manufacture, preparation, checkout, and launch of a launch vehicle and/or payload to or from, or otherwise supported by the Eastern Range and the associated ground support equipment and facilities

**PSP** - Program Support Plan

**public safety** - safety involving risks to the general public of the United States or foreign countries and/or their property

**Range** - in this document, Range refers to the Eastern Range at CCAS, KSC, PAFB, JDMTA, ANT & ASC.

**Range Commander** - Commander of the Eastern Range in accordance with DoDD 3200.11; sometimes called Range Director, when interfacing with commercial Range Users.

**NOTE:** Currently, the 45 SW Commander is also the Range Commander and Range Director

**Range Contractor** - the Launch Base Support and Range Technical Services contractors and all subcontracted agencies required for operation and maintenance of the ER and similar contractors at the WR. For the purposes of this regulation, the term Range Contractor also refers to NASA and KSC contractors as applicable

**Range Safety Launch Commit Criteria** - hazardous or safety critical parameters, including, but not limited to, those associated with the launch vehicle, payload, ground support equipment, Range Safety System, hazardous area clearance requirements, and meteorological conditions that must be within defined limits to ensure that public, launch area, and launch complex safety can be maintained during a launch operation

**Range Safety Program** - a program implemented to ensure that launch and flight of launch vehicles and payloads present no greater risk to the general public than that imposed by the overflight of conventional aircraft; such a program also includes launch complex and launch area safety and protection of national resources

**Range Safety System** - the system consisting of the airborne and ground flight termination systems, airborne and ground tracking system, and the airborne and ground telemetry data transmission systems

**Range Users** - clients of the Cape Canaveral Air Station, such as the Department of Defense, non-Department of Defense US government agencies, civilian commercial companies, and foreign government agencies that use Eastern Range facilities and test equipment; conduct prelaunch, launch, and impact operations; or require on-orbit support.

**RAPCON** – Radar Approach and Control

**RASCAD** - Range Safety Control and Display

**RCO** – Range Control Officer

**RF** - Radio Frequency

**risk** - a measure that takes into consideration both the probability of occurrence and the consequence of a hazard to a population or installation. Risk is measured in the same units as the consequence such as number of injuries, fatalities, or dollar loss. For Range Safety, risk is expressed as casualty expectation or shown in a risk profile; see also collective risk and individual risk.

**risk analysis** - a study of potential risk

**ROC** – Range Operations Commander

**ROCC** - Range Operations Control Center

**ROTI** - Recording Optical Tracking Instrument/

**RSA** - Range Standardization and Automation

**RSDS** - Range Safety Display System

**RSOR** - Range Safety Operating Requirements

**RTS** - Range Tracking System

**RUSSDPA** – Range User Systems Safety Data Package Approval

**Safety Clearance Zones** - restricted areas designated for day-to-day prelaunch processing and launch operations to protect the public, launch area, and launch complex personnel; these zones are established for each launch vehicle and payload at specific processing facilities, including launch complexes; includes HCA and HLA

**safety holds** - the holdfire capability, emergency voice procedures, or light indication system of each launch system used to prevent launches in the event of loss of Range Safety critical systems or violations of mandatory Range Safety launch commit criteria

**SC** - Statement of Capability

**SCO** – Surveillance Control Officer

**SDR** – System Design Review

**SELV** - Small Expendable Launch Vehicle

**SLBM** - Sea Launched Ballistic Missiles

**SLC** - Space launch Complex

**SLF** - Shuttle Landing Facility

**SMAB** - Solid Motor Assembly Building

**SMARF** - Solid Motor Assembly and Readiness Facility

**SMC** - Space & Missile Systems Center

**SMFCO** – Senior Mission Flight Control Officer

**SMILS** - Sonar Buoy Missile Locator Impact System

**space safety professional** - a safety professional who has been trained and formally certified to meet the criteria outlined in the Launch Complex Safety Training and Certification Program Document

**SPARC** - Single Point Acquisition and Radar Control

**SPF** - Space Port Florida Authority

**SRR** – System requirements Review

**STS** - Space Transportation System

**TIM** - Technical Interchange Meeting

**transponder** - the portion of the airborne Range tracking system that receives and decodes interrogations and generates replies to the interrogations. The transponder

permits the ground instrumentation radar to furnish significantly greater precision and accuracy data at much greater distances and prevents mistracking of powered vehicles due to interference of exhaust plumes or spent stages

**TSO** – Telemetry Systems Officer

**UCS** - Universal Camera Sites

**UDS** - Universal Documentation System

**US** - United States

**USAF** – United States Air Force

**USCG** – United States Coast Guard

**UHF** - Ultra High Frequency

**VAFB** - Vandenberg Air Force base

**VDL** – Voice Direct Lines

**VHF** - Very High Frequency

**VIB** - Vertical Integration Building

**VP** – Vertical Plane

**VRP** - Video Remote Patch

**VWSS** – Vertical Wire Skyscreen

**waiver** - a designation used when, through an error in the manufacturing process or for other reasons, a hardware noncompliance is discovered after hardware production, or an operational noncompliance is discovered after operations have begun at the Eastern Range

**Wing Commander** - see Range Commander